AMENDMENT

IN THE CLAIMS

Please amend the claims as indicated in Appendix A submitted herewith according to the July 30, 2003, revision to 37 C.F.R. § 1.121 concerning a manner for making claim amendments.

REMARKS

Claims 1-6 are presently pending in the captioned application with claim 1 currently amended, claims 2-3 and 5 as originally filed and claims 4 and 6 as previously presented. No new matter within the meaning of § 132 has been added by any of the amendments.

Claim 1 has been amended to delete the phrase "derived from" and to include the term "residual group". The change positively sets forth a feature of the claimed liquid crystal polyester instead of claiming a process step of how the recurring unit is derived as was alleged by the Examiner in an Interview of November 13, 2003.

In particular, it is now claimed that the presently claimed liquid crystal polyester ("LCP") resin has 1 to 500 mmol% of a recurring unit, **which is a residual group** of 4-hydroxyisophthalic

acid ("HIP") and/or salicylic acid ("SA") as a constituent component based on the total of all the recurring units. Support for the amendment can be found at page 15, lines 15 and 26 of the specification, which state that the recurring units are residual groups of SA and HIP.

Although the Examiner states that Applicants previous arguments of October 3, 2003, are unpersuasive because it was argued at page 5, that HIP and SA are present in at least 1 to 500 mmol%, Applicants would like to note that Applicants are not claiming a product-by-process claim as is suggested by the Examiner in her statements at page 5, lines 4-6 of the Final Office Action but rather an entirely new and unobvious LCP composition having a recurring unit which although derived from HIP and SA is nevertheless a separate and distinct limitation of the LCP composition. Accordingly, Applicants have amended independent claim 1 to cancel the phrase "derived from", and instead replaced it with the phrase "which is a residual group".

Applicants would also like to note for the record that the Examiner may have misunderstood the gist of the invention insofar as all the cited references in the § 102 anticipation rejections are directed toward a process for preparing para-hydroxybenzoic acid ("PHBA") rather than being directed towards the presently

claimed LCP composition. For example, the Examiner cites U.S. Patent No. 5,124,477 ("Suzuki et al.") entitled "**Process for Preparing Para-Hydroxybenzoic Acid**" and states that Suzuki et al. teaches a process for preparing PHBA for use in LCP materials by reacting alkali salt of phenol with carbon dioxide via the Kolbe-Schmitt process wherein salicylic acid is generated. See Final Office Action at page 2, lines 15-17.

But as was already noted in the Background section of Applicants' previous Response, the presently claimed invention is not directed to a production process of LCP but rather a novel and unobvious LCP composition. Applicants agree with the Examiner that it is already well known within the art that PHBA is produced by reacting an alkali metal salt of phenol with carbon dioxide via the Kolbe-Schmitt reaction. Applicants further agree that certain well known reactions capable of forming the LCP are not the sole means for the production of the intended LCP materials. However, it is unclear how any of these assertion of what is known in the prior art with regard to producing PHBA relates to the presently claimed LCP composition with the recited limitations. This was noted during the Interview with the Examiner and her Supervisor Sean Wu.

To clarify the present amendment to claim 1 as well as the apparent misunderstanding as to how the production of PHBA relates

to the presently invention, it is again noted by Applicants that the presence of impurities is generally understood to be undesirable in the production of a LCP composition because alkali metal (potassium) has a catalytic function thereby making it more difficult to control polymerization. One of ordinary skill in the art would therefore further purify the resulting PHBA prior to using it as a starting material for LCP because of impurities that remain after the initial Kolbe-Schmitt reaction.

In contrast, the impurities that are considered undesirable in the cited art are critical to the presently claimed LCP composition. As explained herein, the excellent tinting and mechanical properties exhibited by the claimed invention only arise where the LCP resin has 1 to 500 mmol% of a recurring unit, which is a residual group of HIP and/or SA as a constituent component based on the total of all the recurring units as well as 10 to 5,000 ppm in terms of an alkali metal of an alkali metal compound.

Accordingly, Applicants respectfully request the Examiner to enter the amendment, reconsider the rejections and allow all claims pending in this application.

1. Rejection of Claims 1-3 under 35 U.S.C. § 102(b)

The Office Action rejects claims 1-3 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,124,477 ("Suzuki et al."). The Office Action states:

> Suzuki teaches a process for preparing PHBA (para-hydroxybenzoic acid) for use in liquid crystal polyester materials (LCP) by reacting an alkali salt of phenol with carbon dioxide via the Kolbe-Schmitt process wherein salicyclic acid is generated. Via the teaching of Suzuki, potassium salts are preferred. Thus potassium phenolate and potassium salicylates are utilized (3:63-4:9). The amount of the compound of formula I and/or formula II that is contained in the reaction system is specified in column 6, lines 26-37 wherein the amounts are specified in terms of the salts utilized and fall within the specified ranges of applicants claim 1.

Applicants respectfully traverse the rejection over Suzuki et al. because each and every claimed limitation is not taught by the reference. In particular, Suzuki et al. specifically fails to teach a LCP having 1 to 500 mmol% of a recurring unit, which is a residual group of 4-hydroxyisophthalic acid ("HIP") and/or salicylic acid ("SA") and containing 10 to 5,000 ppm in terms of an alkali metal of an alkali metal compound. Any inherency analysis is prohibited because Suzuki et al. relates to the process of preparing para-hydroxybenzoic acid ("PHBA") rather than a LCP

composition. Furthermore, the Final Office Action's citation to col. 6, lines 26-37 of Suzuki et al. as teaching the recited ranges is incorrect insofar as the disclosed ranges are based on oxypotassium salt of phenolic potassium, which is completely different and separate from the recited limitations of 1 to 500 mmol% of a recurring unit, which is a residual group of HIP and SA.

Turning to the rule, the Federal Circuit has spoken clearly and at some length on the question of anticipation. Anticipation requires that each and every element of the claimed invention be disclosed in a single prior art reference. Verdegaal Bros. v. Union Oil Co. of California, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Those elements must be expressly disclosed as in the claim. In re Bond, 15 USPQ2d 1566 (Fed. Cir. 1990).

The prior art reference must also be enabling, thereby placing the allegedly disclosed matter in the possession of the public. In re Brown, 329 F.2d 1006, 1011, 241 USPQ 245, 249 (C.C.P.A. 1964). In order to accomplish this, the reference must be so particular and definite that from it alone, without experiment or the exertion of his own inventive skill, any person versed in the art to which it pertains could construct and use it. Id. at 250.

Finally, the Federal Circuit has made clear that a negative pregnant is not enough to show anticipation. Rowe v. Dror, 112

F.3d 473, 42 USPQ2d 1550 (Fed. Cir. 1997). Thus, where a reference does not explicitly describe anything inconsistent with a claimed use, if that reference nevertheless fails to make an affirmative suggestion of the claimed limitations, that reference cannot anticipate the claimed use. Id.

In the present application, independent claim 1 recites a LCP resin, which comprises 1 to 500 mmol% of a recurring unit, which is a residual group of HIP and/or SA as a constituent component based on the total of all the recurring units and contains 10 to 5,000 ppm in terms of an alkali metal of an alkali metal compound. As taught in the specification at page 2, lines 10-18, the presently claimed LCP is obtained by copolymerizing a trace amount of HIP and/or SA with another polymerizable monomer wherein the LCP further contains a specific amount of an alkali metal ion in the copolymer.

However, Suzuki et al. fails to teach the claimed limitation of 1 to 500 mmol% of a recurring unit, which is a residual group of HIP or SA as well as alkali metal contained within the LCP composition in amounts between 10 to 5,000 ppm of an alkali metal. As noted in the Remarks section supra, impurities are most commonly removed from PHBA prior to its use as a starting material for LCP. In particular, PHBA specifications in the prior art specifically

require a HIP or salicylic acid content of **less** than 1 mmol% and further an alkali metal content of **less** than 10 ppm. Clearly, known LCP compositions made from purified PHBA would not contain the presently claimed ranges of **more** than 1 mmol% of HIP and **more** than 10 ppm of alkali metal content.

Although Suzuki et al. does state that the amount of the compound of formula I and/or II that is contained in the reaction system may range from 0.2 to 30 equivalents, which seems to fall within the presently claimed ranges, Applicants' note that these ranges are calculated in terms of the equivalent of the potassium oxy radical based on the equivalent of the starting potassium phenolate. See Suzuki et al. at col. 6, line 31-33. The 0.2 to 30 equivalents range of Suzuki et al. is completely different from the presently claimed range for a recurring unit, which is a residual group of HIP and salicylic acid, and an alkali metal content. The Final Office Action failed to address this argument. Accordingly, Applicants now present the argument again and note that the Examiner failed to completely and fully respond to Applicants arguments on this point as is required under 37 C.F.R. § 1.104(b).

Applicants would also like to address any possible allegation by the Examiner that PHBA having those ranges are inherently

disclosed by Suzuki et al. In particular, the Federal Circuit held in Rowe v. Dror that a negative pregnant can never be the basis for an anticipatory reference. 42 USPQ2d at 1561. Although all the various types of PHBA may have been present, Suzuki et al. fails to affirmatively recite the presently claimed limitations directed to the content of what are commonly considered undesirable impurities. Specifically, Suzuki et al. teaches away from the presently claimed invention by teaching the substantial absence of SA generated as a by-product. See col. 3, lines 5-6.

Applicants would further like to address the Examiner's flawed analysis of Applicants previous argument made in the previous Response to the Office Action. Although it was argued that HIP and SA are present in the LCP composition, the claims as previously pending contained the correct language that 1 to 500 mmol% of a recurring unit was derived from HIP and/or SA. Since the claims as pending at that time correctly noted that the recurring unit was derived from HIP and/or SA, it appears the Examiner failed to actually examine the claimed limitations as presented in the previous amendment and instead examined the statements made in the Response.

Regarding the Examiner's assertion that Applicants specific arguments fail to comply with 37 C.F.R. § 1.111(b) because

Applicants arguments amounted to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims define a patentable invention, Applicants direct the Examiner's attention to page 6, 3rd paragraph of the previous Response. As can be appreciated by a close reading, the entire 3rd paragraph specifically points out how the language of claim 1 defines a patentable invention over Suzuki et al. Applicants fail to see how the Examiner believes that only a general allegation of patentability is presented by Applicants arguments.

It is respectfully noted by Applicants that the Examiner may have a misunderstanding of what is intended to be encompassed by 37 C.F.R. § 1.111(b). A general allegation of patentability contemplated by the Federal Rules is limited to naked assertions of patentability such as "The invention is patentable over Suzuki et al." Clearly, the detailed arguments provided in the previous Response are not general allegations of patentability but rather complete and detailed statements specifically pointing out how the language of claim 1 defines a patentable invention over the Suzuki et al. reference.

Since each and every claimed limitation of the amended claim 1 is not taught by Suzuki et al., a *prima facie* case of anticipation

has not been established.

Applicants respectfully submit that the presently claimed invention is not anticipated by Suzuki et al. and request the Examiner to reconsider and withdraw the § 102(b) rejection.

3. Rejection of Claims 1-3 under 35 U.S.C. § 102(b)

The Office Action rejects claims 1-3 under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 5,977,405 ("Samuels et al."). The Office Action states:

> Samuels teaches preparation of aromatic hydroxycarboxylic acids and dialkali metal salts wherein p-hydroxybenzoic acid (a salicyclic acid PHBA) is utilized as a monomer in making polyesters. The alkali metal aryloxides are usually prepared via the reaction of an aryl hydroxy compound such as phenol and an alkali metal containing base, such as sodium or potassium hydroxide (1:15-28). Again, the Kolbe-Schmitt process is utilized. Table 1 shows the usage of HIP and Salicylic acid in relation to the salts utilized.

Applicants respectfully traverse the rejection over Samuels et al. because each and every claimed limitation is not taught by the reference. In particular, Samuels et al. fails to teach a LCP

composition having 1 to 500 mmol% of a recurring unit, which is a residual group of 4-hydroxyisophthalic acid ("HIP") and/or salicylic acid ("SA") and containing 10 to 5,000 ppm in terms of an alkali metal of an alkali metal compound. Any inherency analysis is prohibited because Samuels et al. specifically relates to the process of preparing aromatic hydroxycarboxylic acids and dialkali metal salts rather than a LCP composition.

Turning to the rule, the Federal Circuit has spoken clearly and at some length on the question of anticipation. Anticipation requires that each and every element of the claimed invention be disclosed in a single prior art reference. Verdegaal Bros. v. Union Oil Co. of California, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Those elements must be expressly disclosed as in the claim. In re Bond, 15 USPQ2d 1566 (Fed. Cir. 1990).

The prior art reference must also be enabling, thereby placing the allegedly disclosed matter in the possession of the public. In re Brown, 329 F.2d 1006, 1011, 241 USPQ 245, 249 (C.C.P.A. 1964). In order to accomplish this, the reference must be so particular and definite that from it alone, without experiment or the exertion of his own inventive skill, any person versed in the art to which it pertains could construct and use it. Id. at 250.

Finally, the Federal Circuit has made clear that a negative

pregnant is not enough to show anticipation. Rowe v. Dror, 112 F.3d 473, 42 USPQ2d 1550 (Fed. Cir. 1997). Thus, where a reference does not explicitly describe anything inconsistent with a claimed use, if that reference nevertheless fails to make an affirmative suggestion of the claimed limitations, that reference cannot anticipate the claimed use. Id.

In the present application, independent claim 1 recites a LCP resin, which comprises 1 to 500 mmol% of a recurring unit, which is a residual group of HIP and/or SA as a constituent component based on the total of all the recurring units and contains 10 to 5,000 ppm in terms of an alkali metal of an alkali metal compound. As taught in the specification at page 2, lines 10-18, the presently claimed LCP is obtained by copolymerizing a trace amount of HIP and/or SA with another polymerizable monomer wherein the LCP further contains a specific amount of an alkali metal ion in the copolymer.

However, Samuels et al. fails to teach the claimed limitation of 1 to 500 mmol% of a recurring unit, which is a residual group of HIP or SA as well as alkali metal contained within the LCP composition in amounts between 10 to 5,000 ppm of an alkali metal. Instead, Samuels et al. only discloses alkali metal aryl oxide used for the production of an aromatic hydroxyl compound.

Although Samuels et al. teaches in Table 1 at col. 12, line 27-35, a HIP range of 200 to 500 ppm, the Table 1 is limited to percentage yields of the original total samples for Examples 5-7, in which the compounds were present as their alkali metal salts. Nothing is taught with respect to the content of the comonomer in a LCP resin composition. Again, it is noted that the present invention relates to a LCP composition rather than a drying process of alkali metal aryloxides which is the subject of the Samuels et al. reference.

Applicants note that this same argument was made in the previous Response at page 12, last paragraph. However, the outstanding Final Office Action failed to address this argument. Accordingly, Applicants now present the argument again and note for the record that the Examiner failed to fully respond to Applicants arguments on this point as is required under 37 C.F.R. § 1.104(b).

Still further, it appears that the Examiner may have misunderstood what was being argued in the Response. Notably, the Examiner states at page 5, lines 12-14 of the Final Office Action that:

> Applicants further confuse the issues on page 12 by stating that although Samuels does teach HIP ranges, Samuels must also teach, "**1 to 500 mmol% of a recurring unit derived from salicylic acid as a constituent [sic] *component* based on the total of all the recurring units**". [**Emphasis added**] This

argument is also not supported by the limitations of the claims.

The Examiner's statements are incorrect. The Examiner will note that the limitation of "**1 to 500 mmol% of a recurring unit derived from salicylic acid as a constituent component based on the total of all the recurring units**" is very clearly present in independent claim 1 as previously pending at the time of the Response.

Furthermore, Applicants assertion that Samuels et al. must teach the claimed limitation in order for the anticipation rejection to be proper is absolutely correct. As stated supra, anticipation requires that each and every element of the claimed invention be disclosed in a single prior art reference. Verdegaal Bros. v. Union Oil Co. of California, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). In other words, "**1 to 500 mmol% of a recurring unit derived from salicylic acid as a constituent component based on the total of all the recurring units**" must be expressly disclosed in Samuels et al. as in the pending claim 1. In re Bond, 15 USPQ2d 1566 (Fed. Cir. 1990). Notably, claim 1 has been amended to recite that the recurring group is a residual group to avoid any possible confusion of the limitation as a product-by-process limitation.

Regarding the Examiner's assertion that Applicants specific arguments fail to comply with 37 C.F.R. § 1.111(b) because

Applicants arguments amounted to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims define a patentable invention, Applicants direct the Examiner's attention to page 10, last paragraph of the previous Response. As can be appreciated by a close reading, the entire paragraph specifically points out how the language of the claim 1 defines a patentable invention over Samuels et al. Applicants fail to see how the Examiner believes that only a general allegation of patentability is presented by Applicants arguments.

It is respectfully noted by Applicants that the Examiner may have a misunderstanding of what is intended to be encompassed by 37 C.F.R. § 1.111(b). A general allegation of patentability contemplated by the Federal Rules is limited to naked assertions of patentability such as "The invention is patentable over Samuels et al." Clearly, the detailed arguments provided in the previous Response are not general allegations of patentability but rather constitute complete and detailed statements specifically pointing out how the language of claim 1 defines a patentable invention over the teachings of Samuels et al.

Since each and every claimed limitation of the amended claim 1 is not taught by Samuels et al., a *prima facie* case of anticipation

has not been established.

Applicants respectfully submit that the presently claimed invention is not anticipated by Samuels et al. and request the Examiner to reconsider and withdraw the § 102(b) rejection.

4. Rejection of Claims 1-3 under 35 U.S.C. § 102(b)

The Office Action rejects claims 1-3 under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 4,731,475 ("Tanimoto et al."). The Office Action states:

> Tanimoto teaches a method of making PHBA (para-hydroxybenzoic acid) by preparing p-disodium hydroxybenzoate to a disodium process with a secondary production of salicyclic acid (1:10-24). Powdered sodium carbonate may be used within the range of from 5 to 50% by weight in terms of phenol in a solution (2:3-14). P-disodium hydroxybenzoate and sodium chloride in the presence of a transition metal powder are utilized as specified in the examples and abstract. Via the teaching of Tanimoto, sodium salts are preferred.

Applicants respectfully traverse the rejection over Tanimoto et al. because each and every claimed limitation is not taught by the reference. In particular, Tanimoto et al. fails to teach a LCP composition having 1 to 500 mmol% of a recurring unit, which is a residual group of 4-hydroxyisophthalic acid ("HIP") and/or

salicylic acid ("SA") and containing 10 to 5,000 ppm in terms of an alkali metal of an alkali metal compound. Furthermore, Tanimoto et al. is non-analogous art insofar as the teachings only relate to phenol content in an aqueous solution, which has no bearing on the content of an alkali metal compound in LCP. In particular, the teachings of Tanimoto et al. relate to a process for producing solid disodium parahydroxybenzoate and not even a process for producing PHBA, which the Examiner has apparently been confusing as the claimed invention.

Again, it is noted that Applicants already made the argument that Tanimoto et al. is non-analogous art in the previous Response at page 14, 1st full paragraph. However, the outstanding Final Office Action failed to address this argument similar to other arguments made in the previous Response and instead simply stated that a complete and detailed statement specifically pointing out how the language of the claims defines a patentable invention was not presented. This is clearly incorrect.

Applicants now present the argument again and note for the record that the Examiner failed to fully respond to Applicants arguments on this point as is required under 37 C.F.R. § 1.104(b).

Turning to the substance of the argument, the Federal Circuit has spoken clearly and at some length on the question of

anticipation. Anticipation requires that each and every element of the claimed invention be disclosed in a single prior art reference. Verdegaal Bros. v. Union Oil Co. of California, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Those elements must be expressly disclosed as in the claim. In re Bond, 15 USPQ2d 1566 (Fed. Cir. 1990).

The prior art reference must also be enabling, thereby placing the allegedly disclosed matter in the possession of the public. In re Brown, 329 F.2d 1006, 1011, 241 USPQ 245, 249 (C.C.P.A. 1964). In order to accomplish this, the reference must be so particular and definite that from it alone, without experiment or the exertion of his own inventive skill, any person versed in the art to which it pertains could construct and use it. Id. at 250.

Finally, the Federal Circuit has made clear that a negative pregnant is not enough to show anticipation. Rowe v. Dror, 112 F.3d 473, 42 USPQ2d 1550 (Fed. Cir. 1997). Thus, where a reference does not explicitly describe anything inconsistent with a claimed use, if that reference nevertheless fails to make an affirmative suggestion of the claimed limitations, that reference cannot anticipate the claimed use. Id.

In the present application, independent claim 1 recites a LCP resin, which comprises 1 to 500 mmol% of a recurring unit, which is a residual group of HIP and/or SA as a constituent component based

on the total of all the recurring units and contains 10 to 5,000 ppm in terms of an alkali metal of an alkali metal compound. As taught in the specification at page 2, lines 10-18, the presently claimed LCP is obtained by copolymerizing a trace amount of HIP and/or SA with another polymerizable monomer wherein the LCP further contains a specific amount of an alkali metal ion in the copolymer.

However, Tanimoto et al. fails to teach the claimed limitation of 1 to 500 mmol% of a recurring unit, which is a residual group of HIP or SA as well as alkali metal contained within the LCP composition in amounts between 10 to 5,000 ppm of an alkali metal. Instead, Tanimoto et al. only discloses a method of making solid p-disodium hydroxybenzoate by preparing p-disodium hydroxybenzoate to a disodium process with a secondary production of salicylic acid.

Tanimoto et al. is totally irrelevant insofar as the teachings only relate to the phenol content of 5 to 50 wt% in the aqueous solution, which has no bearing on the content of an alkali metal compound in a LCP composition. Again, it is noted that the present invention relates to a LCP composition rather than a process of making solid p-disodium hydroxybenzoate, which is the subject of the Tanimoto et al. reference.

Still further, it appears that the Examiner may have

misunderstood what was being argued in the Response. Notably, the Examiner states at page 6, 3rd paragraph of the Final Office Action that:

> Applicants once gain argue "nowhere do Tanimoto et al. teach any of the recited limitations as to a HIP or salicylic acid content" and as noted above this argument is not supported by the any of the limitations of the claims.

However, it is noted that the Examiner's statements are incorrect. The Examiner will note that the limitation of "**1 to 500 mmol% of a recurring unit derived from salicylic acid as a constituent component based on the total of all the recurring units**" is very clearly present in independent claim 1 as previously pending at the time of the Response. This claimed limitation very clearly relates to teachings as to a HIP or salicylic acid content.

Tanimoto et al. must also teach the claimed limitation in order for the anticipation rejection to be proper. As stated supra, anticipation requires that each and every element of the claimed invention be disclosed in a single prior art reference. Verdegaal Bros. v. Union Oil Co. of California, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). In other words, "**1 to 500 mmol% of a recurring unit derived from salicylic acid as a constituent component based on the total of all the recurring units**" must be expressly

disclosed in Tanimoto et al. as in the pending claim 1. In re Bond, 15 USPQ2d 1566 (Fed. Cir. 1990). Notably, claim 1 has been amended to recite that the recurring group is a residual group to avoid any possible confusion of the limitation as a product-by-process limitation.

Regarding the Examiner's assertion that Applicants specific arguments fail to comply with 37 C.F.R. § 1.111(b) because Applicants arguments amounted to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims define a patentable invention, Applicants direct the Examiner's attention to page 14, 1st paragraph of the previous Response. As can be appreciated by a close reading, the entire paragraph specifically points out how the language of the claim 1 defines a patentable invention over Tanimoto et al. Applicants fail to see how the Examiner believes that only a general allegation of patentability is presented by Applicants arguments.

It is respectfully noted by Applicants that the Examiner may have a misunderstanding of what is intended to be encompassed by 37 C.F.R. § 1.111(b). A general allegation of patentability contemplated by the Federal Rules is limited to naked assertions of patentability such as "The invention is patentable over Tanimoto et

al." Clearly, the detailed arguments provided in the previous Response are not general allegations of patentability but rather constitute complete and detailed statements specifically pointing out how the language of claim 1 defines a patentable invention over the teachings of Tanimoto et al.

Since each and every claimed limitation of the amended claim 1 is not taught by Tanimoto et al., a *prima facie* case of anticipation has not been established.

Accordingly, Applicants respectfully submit that the presently claimed invention is not anticipated by Tanimoto et al. and respectfully request the Examiner to reconsider and withdraw the § 102(b) rejection.

5. **Rejection of Claims 4 and 5 under 35 U.S.C. § 103(a)**

The Office Action rejects claims 4 and 5 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,124,477 ("Suzuki et al.") or U.S. Patent No. 5,977,405 ("Samuels et al."), each in view of U.S. Patent No. 5,891,532 ("Furuta et al."). The Office Action states:

> Suzuki teaches a process for preparing PHBA (para-hydroxybenzoic acid) for use in liquid crystal polyester materials (LCP) by reacting an alkali salt of phenol with carbon dioxide

> via the Kolbe-Schmitt process wherein salicyclic acid is generated. Samuels teaches preparation of aromatic hydroxycarboxylic acids and dialkali metal salts wherein p-hydroxybenzoic acid (a salicyclic acid PHBA) is utilized as a monomer in making polyesters. The alkali metal aryloxides are usually prepared via the reaction of an aryl hydroxy compound such as phenol and an alkali metal containing base, such as sodium or potassium hydroxide (1:15-28). Again, the Kolbe-Schmitt process is utilized.
>
> Neither Samuels nor Suzuki teaches the LCP resin the materials made are utilized in, only to say that each is for use in LCP resins.
>
> Furuta teaches a LCP as specified in claim 5 wherein recurring units I, II and III are shown in columns 4-7 wherein it is taught that preferred combinations include polyesters from groups I and II which are as shown by applicants.
>
> It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the polyesters of Samuels or Suzuki and utilize them in the resin co-polyesters of Furuta as both Suzuki and Samuels teach the materials made by the Kolbe-Schmitt process to be for use in any LCP resin material.

Applicants respectfully traverse the rejections because the cited references alone or in combination fail to teach and every claimed limitation. As noted supra, Suzuki et al. and Samuels et al. fail to teach a LCP composition having 1 to 500 mmol% of a recurring unit, which is a residual group of 4-hydroxyisophthalic

acid ("HIP") and/or salicylic acid ("SA") and containing 10 to 5,000 ppm in terms of an alkali metal of an alkali metal compound. Both references fail to teach the base limitations.

Turning to the rule, the Federal Circuit held that a *prima facie* case of obviousness must establish: (1) some suggestion or motivation to modify the references; (2) a reasonable expectation of success; and (3) that the prior art references teach or suggest all claim limitations. Amgen, Inc. v. Chugai Pharm. Co., 18 USPQ2d 1016, 1023 (Fed. Cir. 1991); In re Fine, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988); In re Wilson, 165 USPQ 494, 496 (C.C.P.A. 1970).

However, even if a *prima facie* case of obviousness has been established, secondary considerations such as commercial success, long felt but unsolved need, failure of others, and unexpected results may nevertheless give rise to a patentable invention. Graham v. John Deere Co., 148 U.S.P.Q. 459 (1966). For example, evidence such as superiority in a property the compound shares with the prior art can rebut a *prima facie* case of obviousness. See In re Chupp, 816 F.2d 643, 646, 2 USPQ2d 1437, 1439 (Fed. Cir. 1987).

In the present application, independent claim 1 recites a liquid crystal polyester resin having 1 to 500 mmol% of a recurring unit, which is a residual group of 4-hydroxyisophthalic acid ("HIP") and/or salicylic acid ("SA") and containing 10 to 5,000 ppm

in terms of an alkali metal of an alkali metal compound. Nowhere do Suzuki et al. or Samuels et al. teach any of the recited limitations as to a HIP or salicylic acid content. As noted in the Remarks section supra, impurities are most commonly removed from PHBA prior to its use as a starting material for LCP. In particular, PHBA specifications in the prior art specifically require a HIP or salicylic acid content of **less** than 1 mmol% and further an alkali metal content of **less** than 10 ppm. Clearly, known LCP compositions made from purified PHBA would not contain the presently claimed ranges of **more** than 1 mmol% of HIP and **more** than 10 ppm of alkali metal content.

Although Furuta et al. discloses the LCP specified in claim 5 of the present application, this alone fails to render the presently pending claims obvious because the primary references Suzuki et al. and Samuels et al. fail to teach the base limitations from which claims 4 and 5 depend from.

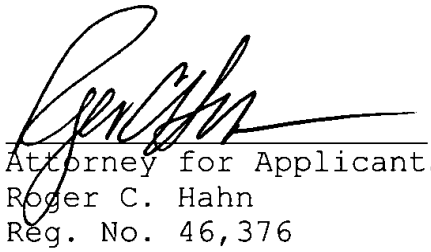
Accordingly, Applicants respectfully submit that the presently claimed invention is unobvious over the cited references and respectfully request reconsideration and withdrawal of the rejections of claims 4 and 5 under 35 U.S.C. § 103.

CONCLUSION

In light of the foregoing, Applicants submit that the application is now in condition for allowance. The Examiner is therefore respectfully requested to reconsider and withdraw the rejection of the pending claims and allow the pending claims. Favorable action with an early allowance of the claims pending is earnestly solicited.

Respectfully submitted,

SHERMAN AND SHALLOWAY



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Attorney Docket No. OHSH-311
PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:) Group Art Unit: 1756
)
UENO; KITAYAMA; KOMETANI;) Examiner: J. Sadula
KATO; UEDA)
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Serial No. 10/009,613)
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Filed: December 14, 2001)

For: **LIQUID CRYSTAL POLYESTER RESIN**

Appendix A

Please amend the claims as indicated according to the July 30, 2003, revision to 37 C.F.R. § 1.121 concerning a manner for making claim amendments.

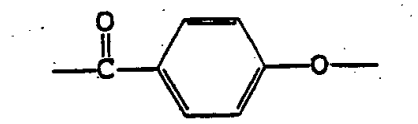
1. (Currently amended) A liquid crystal polyester resin, which comprises 1 to 500 mmol% of a recurring unit ~~derived from~~ , which is a residual group of 4-hydroxyisophthalic acid and/or salicylic acid as a constituent component based on the total of all the recurring units and contains 10 to 5,000 ppm in terms of an alkali metal of an alkali metal compound.

2. (Original) The liquid crystal polyester resin of claim 1, wherein the alkali metal is potassium and/or sodium.

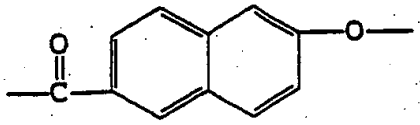
3. (Original) The liquid crystal polyester resin of claim 1, wherein the alkali metal compound is at least one salt selected from the group consisting of a sulfate, carbonate, bicarbonate, nitrate, carboxylate and halogen salt of an alkali metal.

4. (Previously Presented) The liquid crystal polyester resin of claim 3, wherein the alkali metal salt existent in the resin has an average particle diameter in terms of volume average particle diameter of 0.01 to 500 μm.

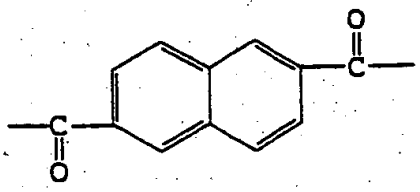
5. (Original) The liquid crystal polyester resin of claim 1 which consists essentially of a recurring unit represented by the following formula (I) and at least one of a recurring unit represented by the following formula (II) and a recurring unit represented by the following formula (III):



(I)



(II)



(III)

6. (Previously Presented) The liquid crystal polyester resin of claim 1, wherein the amount of the recurring unit derived from 4-hydroxyisophthalic acid and/or salicylic acid is 5 to 100 mmol%.